

REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims is as follows. Claims 1-61 were originally filed. Claims 5-7, 10, 16-20, 22-56, 60 and 61 were withdrawn from consideration in a previous Office Action. Applicant reserves the right to file divisional applications to the separately patentable subject matter of the aforementioned claims as well as to the non-elected species. Claims 1, 12 and 57 have been amended herein, Claims 8, 9, 14 and 15 were previously canceled herein and Claims 62-63 were previously added. Claims 5-10, 22-56, and 60-61 have been canceled above.

The Amendment

Claim 1 was amended to recite non-enzymatic organic electron donors and acceptors. Support therefor is in the Specification, for example, page 27, lines 14-16. It should be noted that the Specification makes a clear distinction between organic electron donors and acceptors, on the one hand, and enzyme systems, on the other hand. It has been held that language for an amendment to a claim does not require literal support in an applicant's specification. See, for example, *Ex parte Parks*, 30 USPQ 2d 1234 (B.P.A.I. 1994). In the present situation, it is evident that Applicant made a clear distinction in the written description between enzymes and organic electron donors and acceptors, thus, adequately supporting the language "non-enzymatic" organic electron donors and acceptors.

Claims 12 and 57 were amended in a manner similar to that for Claim 1 above.

Rejections under 35 U.S.C. §102

Claims 1-4, 11-15, 21, and 57-59 and 62-63 were rejected under paragraph (e)(1) of the above code section as being anticipated by De Lumley-woodyear, *et al.* (U.S. Patent Application Publication 2002/0081588) (De Lumley-woodyear). Applicant notes that the Office Action included Claims 14 and 15 in the rejection. However, Claims 14 and 15 were canceled in Applicant's previous paper. Applicant assumes that the inclusion of Claims 14 and 15 in the rejection was merely a typographical error. If Applicant's assumption is incorrect, Applicant requests that Applicant be given the opportunity to respond.

In order to maintain a rejection under 35 U.S.C. §102(b), the Examiner must first establish a *prima facie* case of anticipation. An invention is anticipated if each and every limitation of the claimed invention is disclosed in a single prior art reference. *In re Paulsen*, 30 F.3d 1475, 1478, 31 U.S.P.Q.2d 1671, 1673 (Fed. Cir. 1994).

In the present situation, De Lumley-woodyear does not disclose each and every element of the presently claimed invention of Claims 1, 12 and 57 and those claims dependent therefrom. The reference fails to disclose or suggest the use of a target probe that is covalently coupled to a redox active moiety selected from the group consisting of transition metal complexes and non-enzymatic organic electron donors and acceptors or the use of a target probe that is attached to one member of a bioconjugate pair that binds to the other member of a bioconjugate pair where such other member comprises a redox active moiety selected from the group consisting of transition metal complexes and non-enzymatic organic electron donors and acceptors.

The Office Action argues that paragraphs 0110 and 0111 teach enzymes that catalyze redox reactions. Thus, continues the Office Action, the enzymes are redox moieties that are reasonably organic electron donors as part of such redox reactions.

Applicant submits that the label enzymes of the reference are not non-enzymatic organic electron donors as recited in the claims. Furthermore, the label enzymes of the reference result in the electrooxidation or electroreduction of a substrate, which is a detection compound. See, for example, paragraph 0105 of the reference, which recites that the detection compound is usually a compound (e.g., substrate) that is reduced or oxidized in the presence of the labeling catalyst or enzyme, for example, hydrogen peroxide when the enzyme is a peroxidase. In paragraph 0112, the reference states that any non-wired enzyme may be used to generate the detection compound. The detection compound is usually a substrate or a co-substrate of the catalyst that is used for labeling. An example of an enzyme that catalyzes a reaction whereby a detection compound is generated is choline oxidase. The reference specifically states that the enzyme does not exchange electrons with the redox polymers on the electrode. Rather, the enzyme catalyzes the reaction of dissolved choline and dissolved oxygen, whereby hydrogen peroxide is generated. Thus, the reference appears to teach away from the proposition that the label

enzymes of the reference are organic electron donors.

With regard to Claim 57 and claims dependent therefrom, the reference does not disclose or suggest treating each test site, to which a target nucleic acid is hybridized, to extend the length of each oligonucleotide probe thereby incorporating an electronically responsive detector agent into each of the oligonucleotides where the electronically responsive detector agent is selected from the group consisting of transition metal complexes and non-enzymatic organic electron donors and acceptors.

The Office Action argues that the reference teaches the attachment of electron donor enzymes wherein a standard 5' attachment chemistry is employed that includes covalent bonding to form Schiff's bases. The Office Action concludes that such chemistry clearly extends the probe with the redox and thus electronically responsive detector agent is added to the probe.

As Applicant has demonstrated above, the labeling enzyme of the reference is not an electronically responsive detector agent as recited in the claims above. The reference states that the labeling enzymes operate other than by donating electrons as shown above. Therefore, the disclosure of the reference does not anticipate Claim 57 and those claims dependent therefrom.

With regard to Claim 62 and for the reasons presented above, De Lumley-woodyear does not disclose or suggest the method as claimed wherein at least one target probe is an oligonucleotide probe, and a redox active moiety as defined in Claim 1, from which Claim 62 depends, is covalently attached to a nucleotide of the oligonucleotide probe. With regard to Claim 63 and for the reasons presented above, De Lumley-woodyear does not disclose or suggest the method as claimed wherein at least one target probe is an oligonucleotide probe, and a redox active moiety as defined in Claim 1, from which Claim 63 depends, is covalently attached to the 3' or 5' nucleotide of the oligonucleotide probe.

Conclusion

Claims 1-4, 11-13, 21, 57-59 and 62-63 satisfy the requirements of 35 U.S.C. §102. Allowance of the above-identified patent application, it is submitted, is in order.

In any event, Applicant respectfully requests entry of the above amendments since they narrow the number of issues and place the claims in better form for consideration on appeal. The above amendments were not presented earlier because they address issues raised only in the last Office Action.

Respectfully submitted,

A handwritten signature in black ink, reading "Theodore J. Leitereg". The signature is written in a cursive, flowing style with a large, prominent "T" and "L".

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